

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 to 97 (cancelled)

98. (withdrawn) Apparatus for controlling the temperature of a target animal at a given location comprising:

- a. a sprayer including means for attaching to a fixed support for pivotal movement about a first axis and for mounting for pivotal movement about a second axis of different orientation from the first axis:
- b. said sprayer comprising a motor driven fan having an axis of rotation, an air inlet, an air discharge and including fan blades, a hub, a guard grill, and a nozzle unit symmetrically fixedly mounted relative to the axis of rotation of the fan on one of the grill and hub on the discharge side of the fan without any substantial interference with the air discharge;
- c. said nozzle unit including means for receiving liquid, at least one liquid inlet to the means for receiving liquid and at least one nozzle outlet directed downstream of the fan, and a removable elongated nozzle mounted in the nozzle outlet;
- d. the sprayer being constructed and arranged to generate, at the air discharge of the fan, an air stream having a velocity of up to 20 m/sec, and to generate and propel, from the removable elongated nozzle, a mist stream of a beam-like quality centrally within the air stream that will be confined and maintained and entrained by the air stream, said mist stream having a measurable and controllable lateral dimension so that it can be accurately directed to a target animal, and being contained to a defined diameter of up to 7 meters for a target animal located a maximum distance of 16 meters from the fan by introducing liquid under pressure of from about 2 atm to about 6 atm into the liquid inlet of nozzle unit at a rate of from about 5 l/hr to about 50 l/hr;
- e. a control valve to control liquid admitted to the liquid inlet of the nozzle unit;

- f. delivery means for delivering liquid under pressure via said control valve to the at least one liquid inlet of the nozzle unit;
- g. sensing means for sensing a condition relative to a target animal location; and
- h. control means responsive to said sensing means for controlling one of delivery of liquid to said at least one liquid inlet of the nozzle unit and the relative position of the sprayer with respect to a target animal location.

99. (withdrawn) Apparatus according to claim 98 wherein the sensing means senses time and said control means operates said delivery means intermittently.

100. (withdrawn) Apparatus according to claim 98 wherein the sensing means is a device for sensing an ambient condition.

101. (withdrawn) Apparatus according to claim 98 further including a controller for controlling the fan motor.

102. (withdrawn) Apparatus according to claim 98 wherein the first axis is a vertical axis and the second axis is a horizontal axis, and further including means for rotating the sprayer about the vertical axis.

103. (withdrawn) Apparatus according to claim 102 further including an elongated cross member having one end pivotally attached about the first axis to a fixed support and its other end attached to the sprayer.

104. (withdrawn) Apparatus according to claim 103 wherein the cross member is adjustable with respect to the fixed support.

105. (withdrawn) Apparatus according to claim 103 further including means for constraining pivotal movement of the cross member to 90 degrees.

106. (withdrawn) Apparatus according to claim 103 further including means for constraining pivotal movement of the cross member to 180 degrees.

107. (withdrawn) Apparatus according to claim 103 wherein the first end of the cross member is at a higher elevation than the second end whereby operation of the fan moves the cross arm to one position, and varying operation of the fan allows the cross arm to move by gravity to a second position.

108. (withdrawn) Apparatus for controlling the temperature of a plurality of target animals at a plurality of given locations comprising:

A. a network of operative devices each associated with one of the plurality of target

animals, each operative device comprised of

- i. a sprayer including means for attaching to a fixed support for pivotal movement about a first axis and for mounting for pivotal movement about a second axis of different orientation from the first axis;
- ii. said sprayer comprising a motor driven fan having an axis of rotation, an air inlet, an air discharge and including fan blades, a hub, a guard grill, and a nozzle unit symmetrically fixedly mounted relative to the axis of rotation of the fan on one of the grill and hub on the discharge side of the fan without any substantial interference with the air discharge;
- iii. said nozzle unit including means for receiving liquid, at least one liquid inlet to the means for receiving liquid and at least one nozzle outlet directed downstream of the fan, and a removable elongated nozzle mounted in the nozzle outlet;
- iv. the sprayer being constructed and arranged to generate, at the air discharge of the fan, an air stream having a velocity of up to 20 m/sec, and to generate and propel, from the nozzle outlet of the at least one nozzle, a mist stream of a beam-like quality centrally within the air stream that will be confined and entrained by the air stream with said mist stream having a measurable and controllable lateral dimension so that it can be accurately directed to a target animal at a given location, the mist stream having a defined diameter of up to 7 meters for a target animal located a maximum distance of 16 meters from the fan by introducing liquid under pressure of from about 2 atm to about 6 atm into the liquid inlet of nozzle unit at a rate of from about 5 l/hr to about 50 l/hr; and
- v. a control valve to control liquid admitted to the liquid inlet of the nozzle unit;
- vi. delivery means for delivering liquid under pressure in parallel via said control valves to the at least one liquid inlet of the nozzle units of said operative devices;
- vii. sensing means for sensing a condition relative to target animal location; and
- viii. control means responsive to said sensing means for controlling one of delivery of liquid to said operative devices and the relative position of the sprayer of each operative device with respect to its associated target animal location.

109. (withdrawn) Apparatus according to claim 108 wherein the sensing means senses time and said control means operates said delivery means intermittently.

110. (withdrawn) Apparatus according to claim 108 wherein the sensing means senses an ambient condition including at least one of humidity, wind speed and wind direction.

111. (withdrawn) Apparatus according to claim 108 further including a controller for controlling the fan motor.

112. (withdrawn) Apparatus according to claim 108 wherein the first axis is a vertical axis and the second axis is a horizontal axis, and further including means for rotating the sprayer about the vertical axis.

113. (withdrawn) Apparatus according to claim 112 further including an elongated cross member having one end pivotally attached about the first axis to a fixed support and its other end attached to the sprayer.

114. (withdrawn) Apparatus according to claim 113 wherein the cross member is adjustable with respect to the fixed support.

115. (withdrawn) Apparatus according to claim 113 further including means for constraining pivotal movement of the cross member to 90 degrees.

116. (withdrawn) Apparatus according to claim 113 further including means for constraining pivotal movement of the cross member to 180 degrees.

117. (withdrawn) Apparatus according to claim 113 wherein the first end of the cross member is at a higher elevation than the second end whereby operation of the fan moves the cross arm to one position, and stopping operation of the fan allows the cross arm to move by gravity to a second position.

118 to 157 (cancelled)

158. (new) Method for controlling the temperature of a target animal at a given location about 16 meters distant comprising the steps of:

- a. providing an air fan assembly comprised of a housing including an air inlet and a planar member defining an air outlet opening and an air fan juxtaposed in said air outlet opening in said planar member with the planar member peripherally surrounding said fan on all sides and extending peripherally outwardly thereof, said air fan having blades rotary mounted on a hub that has a longitudinal axis about which said blades rotate and a motor driving said fan;
- b. mounting said air fan assembly on a support for pivoting about an axis normal to the longitudinal axis of said hub;

- c. operating said air fan assembly to generate, downstream from the air fan, an air stream having a maximum velocity of 2 m/sec;
 - d. providing a cylindrical nozzle chamber fixed to the air outlet side of the fan longitudinally aligned with the hub and of substantially the same diameter and having a front portion facing forward in the direction the air stream flow, said chamber defining at least one forward facing opening;
 - e. introducing liquid via a liquid inlet to the cylindrical nozzle chamber with an orientation that produces centrifugal motion for liquid within the cylindrical nozzle chamber, said liquid being introduced under a pressure of from about 3 to 6 atm and at a flow rate of from about 5 l/hr to about 50 l/hr;
 - f. press fitting at least one replaceable flexible hollow elongated nozzle into said forward facing opening; and
 - g. discharging the centrifugally moving liquid in said cylindrical nozzle chamber through said at least one flexible hollow elongated nozzle to form a conic spray centrally entrained in said air stream for controlling the temperature of a target animal at a given location about 16 meters distant from said at least one flexible hollow elongated nozzle.
159. (new) The method according to claim 158 including the further steps of
- i. sensing a condition relative to the target animal location; and
 - j. controlling, responsive to said sensed condition, one of delivery of liquid to the cylindrical nozzle chamber and the relative angle of the axis of the air stream with respect to target animal location in order to maintain an effective entrained air stream at the target animal location.
160. (new) Method according to claim 159 wherein sensing includes timing the mist generation and wherein the step of introducing liquid is operated intermittently.
161. (new) Method according to claim 159 wherein sensing includes determining an ambient condition.
162. (new) Method according to claim 158 including the further step of mounting the support for vertical articulation.
163. (new) Method according to claim 158 further including the steps of supporting the air fan assembly relative to a fixed point and adjusting the air fan assembly relative to said fixed point.

164. (new) Method according to claim 163 further including the steps of adjusting the air fan assembly by differential pressure to a first position and adjusting the air fan assembly to a second position by gravity.

165. (new) Method according to claim 158 wherein a plurality of flexible hollow elongated nozzles are each press fitted into a forward facing opening of said chamber.

166. (new) Method according to claim 165 wherein four flexible hollow elongated nozzles are each press fitted into four equally distributed forward facing openings of said chamber.

167. (new) Method according to claim 158 wherein the method steps recited are carried out for a plurality of target animals at a plurality of target locations using a plurality of air fan assemblies.